Federal Support Electronic Commerce Committee

EC Project Plan

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This plan was written for the Federal Support Electronic Commerce Committee by the Logistics Management Institute (LMI) under Task Order DEN02.

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Preface

The Federal Support Electronic Commerce (EC) Committee is composed of representatives of numerous federal agencies that provide support for science, technology, education, the environment and infrastructure as a way of promoting social and economic development. The committee's goal is to replace paper with electronic data as the medium of information exchange. The following agencies are members of the EC Committee and contributed to the development of this plan: Air Force Office of Scientific Research, Army Medical Research (Acquisition Activity), Army Research Office, Department of Education, Department of Energy, Department of Health and Human Services, Department of Transportation, Environmental Protection Agency, Federal Aviation Administration, National Aeronautics and Space Administration, National Institutes of Health, National Science Foundation, and the Office of Naval Research Administration.

This support is provided in many forms but commonly includes the following:

- Research grants and contracts — awarded mostly to institutions of higher education, but also many other types of organizations to stimulate innovative research in thrust areas. Health, energy, space, aviation, and other sciences represent some of the broad areas included in the research program.
- Block, discretionary, and formula grants — typically awarded to state or local governments. These grants promote a wide variety of goals, including improving infrastructure and establishing new programs and services. Transportation, education, and environment are three of the many areas these grants target.

Administering these diverse programs is a challenging endeavor. The processing cycle of a typical research grant requires defining the requirement where research is desired; announcing the availability of grants; receiving and evaluating applications; making and modifying awards; tracking progress; issuing funds; monitoring fund usage; and closing-out the completed grant. Each step requires work and the exchange of information by both the federal agency and the recipient. Each of these steps is both labor- and paper-intensive, and frequently takes a significant amount to time to complete.

Electronic transmission of data is expected to reduce costs and delays, while improving data quality and the services offered in administering grants. These improvements will benefit both the federal agencies and support recipients.

This plan provides background to the EC effort, describes overall goals and objectives for federal support EC, and identifies the specific steps to be taken to get there. It is a dynamic working document. While its goals are expected to remain steady, its objectives, strategies, issues, and time lines will change periodically as new information becomes available and the project grows and matures. Because participants in this plan are at different stages of evaluating, reinventing, and automating their business practices, they will implement EC initiatives at different rates under differing sets of priorities. During that process, this plan should continue to provide a focus for discussion, a standard for inter-agency cooperation, and a framework for action.

Chapter 1 Introduction

Electronic commerce (EC) embraces many technologies used to streamline business operations in ways that will reduce operating costs while at the same time improve business performance. Among these are electronic data interchange (EDI) and various technologies which take advantage of new capabilities on the World Wide Web (WWW). EDI has been widely used in the private sector for many years and is being used increasingly in government operations at all levels (federal, state, and local). Use of the World Wide Web is a more recent phenomenon that has gained widespread acceptance across all sectors and among the general public. The federal government has embraced a strong EC program in numerous business areas, including procurement, logistics, transportation, customs, and taxation.

The Federal Support EC Committee realizes the potential of EC to improve our administration of federal support.[1] The Committee members are fully participating in the federal EC effort, and are undertaking to implement it in federal support administration.

BACKGROUND AND ORIGINS OF THE COMMITTEE

Federal Research Managers Group

In 1992 leaders from the National Science Foundation (NSF) and three research organizations[2] within the Department of Defense(DoD) met to discuss ways they might share information and resources that would benefit each other and their supporting research community. These discussions led to a partnership under which they agreed to work together in a number of areas, including technical staff exchange, cooperative program development, and common business practice implementation. Now called the Federal Research Managers Group (FRMG), and formally known as the Tri-services group, it has since expanded to include additional agencies and continues to meet quarterly.

[1] Federal support is financial and other assistance provided by federal agencies to accomplish specific tasks. Types include block, discretionary, formula, and research grants; research contracts; and cooperative agreements.

[2] Air Force Office of Scientific Research (AFOSR), Army Research Office, and Office of Naval Research (ONR).

Business Practices Working Group

To develop improved and common business practices, the FRMG established the Business Practices Working Group (BPWG). The BPWG is composed of a representative from each participating agency. Like the FRMG group, the BPWG membership has expanded and now includes 15 agencies. The group meets quarterly to discuss how to streamline grant administration, and to establish specific initiatives. BPWG participates actively in Vice President Gore's National Performance Review (NPR) initiatives to reinvent government.

Several of the BPWG initiatives focus on emerging technologies such as EC, which some of the participating agencies were previously developing independently. Because of the advanced state of the EC effort and the range of skills and time required, the BPWG established the Federal Support EC Committee in December 1993 to provide a forum for sharing technical information about continued progress.

Federal Support EC Committee

As with the BPWG, each agency selected a representative to participate on the committee. Also like the BPWG, it has grown since its inception. The EC Committee's first task was to develop a means to transmit a research grant application (proposal) electronically rather than by paper, using a data element dictionary of all information transmitted in the application. This effort was completed in the spring of 1994. Next, recognizing the broad federal effort to use EDI, the committee began working with the Logistics Management Institute (LMI) on employing EDI to transmit the grant proposal administrative information. The committee's efforts have progressed and expanded in the intervening two years to include

- data exchanges beyond the proposal: awards, award acknowledgments, solicitations, trading partner registration and profiles and progress reporting;
- other agencies, and types of grants other than research grants; and
- specific implementation issues.

PURPOSE

This plan is written to communicate overall goals, the benefits that will accrue to both our agencies and trading partners, and the many specific steps to begin to reach those goals.

Our audience for this plan includes our managers and coworkers at our respective agencies; members of other federal agencies who might be interested in joining us; organizations responsible for coordinating federal streamlining initiatives (e.g., the Federal EC Program Management Office (FECPMO) and the NPR; but most especially our trading partners).

This plan will document our team approach to implementing EC in federal support. To the greatest extent possible we will establish a "single face" to our trading partners, while recognizing the need to tailor the overall EC effort to meet our unique mission and business requirements. Our approach must move our existing paper-intensive business operations into a paperless, electronic environment. Our ultimate goal must be the integration of business process reengineering efforts with EC in order to fulfill the Federal Support EC Committee vision.

In this plan, we describe a conceptual framework for EC implementation; present our goals, objectives, and strategies; identify our supporting technical architecture; and provide an implementation time line.

OUTLINE

Along with this introductory section, the next several chapters constitute our project plan.

- *Chapter 2* describes EC and technological options and how they gained widespread federal acceptance.
- *Chapter 3* presents our conceptual framework for implementing EC. It is based on our vision of EC and focuses on developing our project plan.
- *Chapter 4* presents the goals, objectives, and strategies we are using to meet our EC vision. (Goals are broad statements of direction, objectives are more specific steps needed to attain the goals, and strategies describe the approach used to achieve one or more objectives.)

The remaining chapters organize our objectives and strategies in the form of a project divided into specific areas.

- *Chapter 5* identifies management techniques for implementing EC.
- *Chapter 6* describes functional requirements for the EC project.
- *Chapter 7* explains the technical infrastructure and other issues related to developing and operating the federal support EC project.
- *Chapter 8* presents the details of the initial implementation of EC.
- *Chapter 9* explains our trading partner outreach program.

Appendixes:

- *Appendix A* identifies project milestones.
- *Appendix B* presents ongoing federal EC initiatives.
- *Appendix C* explains standards for EDI implementation options.
- *Appendix D* lists various federal agencies and other organizations Internet home pages.
- *Appendix E* presents federal agencies and Department of Defense grants transaction volumes from 1992 to 1994.

- *Appendix F* contains a list of current Grants EC Committee participants.
- *Appendix G* is a glossary of acronyms used through out the plan.

Chapter 2 Options for Electronic Commerce

THE MANDATE TO CHANGE

The mandate to change the work environment is clear, and it applies to both the private and public sectors.

Commercial practices are changing to meet numerous challenges. The advent of the global economy offers both the opportunity of a global market and the threat of global competition. The time available to bring a new product to market ahead of the competition is shrinking, as is the time it can be produced and sold before new products replace it. Companies are turning to technology and innovative business approaches to be more competitive.

ELECTRONIC COMMERCE

The term "electronic commerce" was brought into wide use by the Defense Logistics Agency. It has been used in the government since the early 1990s, but has become recognized in business literature only in the last few years. In short, EC is any use of automated information systems or electronic data that drives paper from the workplace. More formally, it is a *philosophy for conducting business in an integrated and automated paperless information environment.* Its tools are many and varied: EDI, the Internet, the World Wide Web (WWW), electronic mail (E-mail), electronic funds transfer (EFT), CD-ROM, electronic imaging systems, bar coding, data warehouses, and other computer-based technologies.[3]

The initial program to apply these technologies in high-payoff areas has broadened into a federal-wide EC initiative. By building electronic information bridges within government agencies and with trading partners, the initiative seeks the following direct and indirect benefits:

- Streamlined and simplified procedures
- Lower data entry costs and more accurate information
- Reduced mailing costs and faster communications
- Reduced paper-handling costs, including for reproduction and storage
- Better management of inventory and other assets
- Improved cash management

[3] As described above, the terms "EC" and "EDI" have distinct meanings. However, as EDI has been such a key component of EC, the difference in the meanings have become blurred, and they are often used interchangeably. In this report we will use EC to refer to both EC and EDI; however, we will use EDI to refer to data exchanges specifically associated with ASC X12 transaction sets.

EC means more than just automating manual processes and eliminating paper transactions. The EC program will eventually move the government and its trading partners into a fully electronic environment and fundamentally change the way they operate. The federal government is embracing EC because it recognizes that information-processing technology is the multiplier needed to improve operating efficiency and mission effectiveness within today's resource constraints. Like EDI, EC technology alone will not yield the required improvements; EC must be merged with revised business processes to realize all the benefits of paperless operation. The following sections describe some specific EC tools that can be used in the federal support business area.

Electronic Data Interchange

One approach is to replace paper as the means to convey information with EDI. Using EDI in conjunction with process reengineering concepts such as just-in-time (JIT) inventory and direct vendor delivery has allowed companies to contain costs yet provide better products and services.

In the federal government the need to change is equally clear. Most agencies will see future staff and budgets either remain constant or decrease while mission requirements increase. As in private industry, technology and innovative approaches are key to meeting these challenges. The NPR and Reinventing Government are initiatives to improve our business operations, and EDI plays a prominent role in them. Also as in private industry, *revising business practices is not merely a response to shrinking resources: it is the opportunity to proactively improve the work environment; and the timeliness, scope, and quality of the services the government provides.*

State and local governments, including the university-based research community, face the same challenges but frequently possess even fewer resources to meet them with, making the mandate to employ new technology and business approaches even more essential.

DoD first used electronic transactions to pass logistics data in the 1960s. This experience was subsequently transferred into private industry, where its first large business application was in tracking transportation assets such as railcars and containers. Use of these electronic formats grew steadily. In the mid-1970s, the American National Standards Institute (ANSI) established a new Accredited Standards Committee (ASC), X12, to develop a national standard for EDI.

Becoming a national standard quickened the pace of EDI expansion. The banking, transportation, automotive, grocery, and other industries have successfully replaced paper purchase orders, bills of lading, invoices, payments, and other forms with electronic transactions. EDI transactions represent paperless business information exchanges that are independent of either partner's unique business processes, computer software, or hardware. *This approach provides flexibility and does not impose the requirement of common hardware, software, business processes, or terminology upon the diverse participants, only common data usage and transmission formats.*

Implementing EDI should not be a goal in and of itself but part of a larger effort to improve business practices. Even if EDI is used to simply replace paper while leaving the existing business processes in place, it will bring benefits, including reduced data entry and mailing costs, more accurate information, faster communications, and decreased paperwork and reproduction. However, fully exploiting the EDI potential requires reengineering the business to bring about the greater advantages of

- faster processing of actions;
- availability of timely and accurate data for decision-makers;
- lower personnel requirements; and
- a responsive environment that supports innovations, such as direct vendor delivery, flexible manufacturing, rapid distribution, and central pay.

EDI has been successfully used for more than 20 years and is now a term that is recognized in business circles around the world. In 1991, a new term associated with electronic business data began to emerge: *electronic commerce.*

Internet

The Internet is the interworking of existing corporate and government networks using common telecommunications standards. It is based on the mutual interest of users to communicate more effectively via electronic message and file transfers.

Internet service providers (ISP) furnish generic network access for all computers connected to the Internet. The Internet works by assigning names or "domains" to networks, companies, and machines. Your Internet Protocol (IP) address and domain name must be registered in the Domain Name Service.

Internet communications may be interpersonal (person-to-person) E-mail, or process-to-process data transfer like EDI. Transmission of a modest amount of data with a dedicated connection can occur in a matter of seconds. The speed depends on how close the trading partners are to Internet "backbones." The Internet uses Hypertext Transfer Protocol (HTTP), an application-level protocol with the speed necessary for distributed, collaborative, hypermedia information systems.

World Wide Web

The World Wide Web was created to be a wide-area hypermedia information retrieval system, giving universal access to a large realm of documents. The WWW was originally intended only to link documents, but it is now possible to transmit pictures, audio, and movies. Currently, it is the most advanced information system deployed on the Internet.

Whereas the Internet is a system of links among thousands of computer networks worldwide, the WWW provides access to almost every communications protocol available, allowing Internet users access to the same documents.

The WWW may be accessed by running a browser program (e.g., Netscape, Mosaic). The browser reads documents and can fetch documents from other sources. The WWW user interface employs Hypertext Markup Language (HTML), which is understood by all WWW clients. (In a hypertext document, if you want more information about a particular subject, you just click on it to read further detail.)

E-Mail

Electronic mail is noninteractive communication of text, data, images, or voice messages by systems using telecommunications links.

Like regular mail, E-mail travels to a particular individual or organization using addresses and mailboxes for routing and storage. Conceptually, sending E-mail is just like sending a letter. A message goes into a central collection and sorting point (the host computer) and is then distributed to the recipient's mailbox, where it sits until the addressee picks it up.

However, E-mail has some distinct advantages over regular mail. Instead of several days, an E-mail message can reach the other side of the world in hours, minutes, or even seconds.

Electronic Funds Transfer

Electronic funds transfer is the banking equivalent of EDI. Banks and other financial institutions transfer electronic checks and related payment information to each other, crediting and debiting customer accounts. EFT transactions are generally exchanged between banks through some form of network or funds transfer system. The most commonly used network is the Automated Clearing House (ACH) Network, made up of 42 regional hubs and 15,000 participating financial institutions. As business demands increase and technology improves, several bank-to-bank EFT formats have been developed for the ACH network. The main difference between the formats is the amount of payment information that can be attached to the payment order.

EC IN FEDERAL POLICY

Numerous federal policy statements have underscored the use of EC for reengineering government. The following examples illustrate that emphasis.

National Performance Review

The National Performance Review report of September 1993 cited EC as the key element in achieving many of the suggestions for reengineering government. Specific NPR recommendations include the following:

- "Use electronic funds transfer . . . to handle all interagency payments, to make payments to state and local governments, and to pay for purchases from the private sector."
- "Establish a government-wide program to use electronic commerce for Federal procurements."
- "Improve electronic mail and messaging among Federal agencies."
- "Develop a Government Information Infrastructure to use government information resources effectively and support electronic government applications."

Presidential Memorandum for Procurement Streamlining

Presidential memorandums reaffirm the administration's support for the NPR's objectives and direct the executive branch to begin implementing them aggressively. One such memorandum[4] identifies the objectives of, and provides an implementation schedule for, streamlining the procurement process using EDI. Because those objectives employ a universal approach readily adaptable to many of our business practices, we present them here:

- "Exchange procurement information — such as solicitations, offers, contracts, purchase orders, invoices, payments, and other contractual documents — electronically between the private sector and the federal government to the maximum extent practical."
- "Provide businesses, including small, small disadvantaged, and women-owned businesses, with greater access to federal procurement opportunities."
- "Ensure that potential suppliers are provided simplified access to the federal government's electronic commerce system."
- "Employ nationally and internationally recognized data formats to broaden and ease the electronic interchange of data; and use agency and industry systems and networks to enable the Government and potential suppliers to exchange information and access federal procurement data."

Federal Acquisition Streamlining Act

The Federal Acquisition Streamlining Act (FASA) was signed by the President on October 13, 1994. This legislation reinforces the President's memorandum for using EDI in acquisition and establishes significant agency incentives for doing so. It also establishes the Federal Acquisition Network (FACNET) architecture, which requires the government to evolve its paperwork-driven procurement into an expedited process based on EDI. FASA also increases the simplified acquisition threshold to $100,000 (from the current $25,000) for agencies which have the required FACNET certification.

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[4] Presidential memorandum, Streamlining Procurement Through Electronic Commerce, October 1993.

This threshold applies to FACNET or non-FACNET solicitations.

Federal Information Processing Standards Publications

Federal Information Processing Standards Publications (FIPS PUBs) are issued by the National Institute of Standards and Technology (NIST) after approval by the Secretary of Commerce.

FIPS 161, released in March 1991, designated the standards that are approved for exchanging electronic data between federal agencies and with private industry for certain types of transactions. They are the standards promulgated by the ANSI ASC X12 and the United Nations EDI for Administration, Commerce and Transportation (EDIFACT) groups

The FIPS PUB 161-2, currently in review, reflects the new Federal organization for EDI deriving from the presidential memorandum and FASA. It contains references to documents and organizations, and new guidance to agencies on selecting national and international standards and implementation conventions (ICs).

Federal EC Program Management Office

The FECPMO was created in response to the presidential memorandum on implementing EC within the government. The office is establishing a structure for developing and maintaining ICs. This structure includes the Federal EDI Standards Management Committee (FESMC), which comprises procurement, finance, and other functional working groups (FWGs). The NIST is the federal IC secretariat.

The goal of the FESMC is to ensure a single government face to trading partners, consistency among instances of an application across agencies, streamlined data, and coordinated government representation at standards bodies. Functions of the committee include harmonizing development of EDI transaction set and message standards among federal agencies and setting government-wide implementation conventions for each EDI application federal agencies use. The FESMC is responsible for developing and maintaining the ICs that all federal agencies will use to implement ASC X12 standards. Working groups will be established under the FESMC in areas such as finance, procurement, and transportation. Members of the committee shall come from federal agencies using or planning to use EDI. The Office of Management and Budget (OMB) will approve the selection of the committee chair.

FEDERAL ASSISTANCE ADMINISTRATION

We believe that EC offers both federal agencies and our trading partners the same benefits that it has provided to other business areas. Among our goals is to make grant opportunities visible through one or more electronic locations where potential applicants can see the full range of available federal assistance. Applicants will submit proposals electronically. Agency business processes to review the proposals will be redesigned to use electronic capabilities. Awards, postaward reporting, and financial exchanges will all occur in an electronic environment.

Reengineering business processes by both federal agencies and trading partners combined with EC offers the following benefits for both sides:

- Reducing the time and cost to receive and evaluate proposals and make awards
- Providing easy-to-obtain and current status of proposals under evaluation
- Establishing a shared system of organization profiles to reduce applicants' repetitive submission of standard, seldom changing information
- Simplifying and speeding up the transfer of funds
- Retaining more application and award data electronically in order to respond more quickly and accurately to congressional and administration inquiries
- Reducing the time and cost to prepare a proposal
- Achieving more accurate and consistent data in different proposals by the same organization
- Simplifying submission of the same or similar proposals to multiple agencies, where appropriate
- Reducing burden on applicants to prepare proposals and support research administration activities.

We believe these are just a few of the improvements that we will see in moving to electronic grants administration. The following chapters describe our vision, goals, objectives, and plans in greater detail.

Chapter 3 EC Implementation Framework

This chapter defines the context of our EC project plan. The EC implementation framework (Figure 3-1) is presented as it relates to our group's vision. After presenting the details of this framework, we will identify our goals, objectives, and strategies.

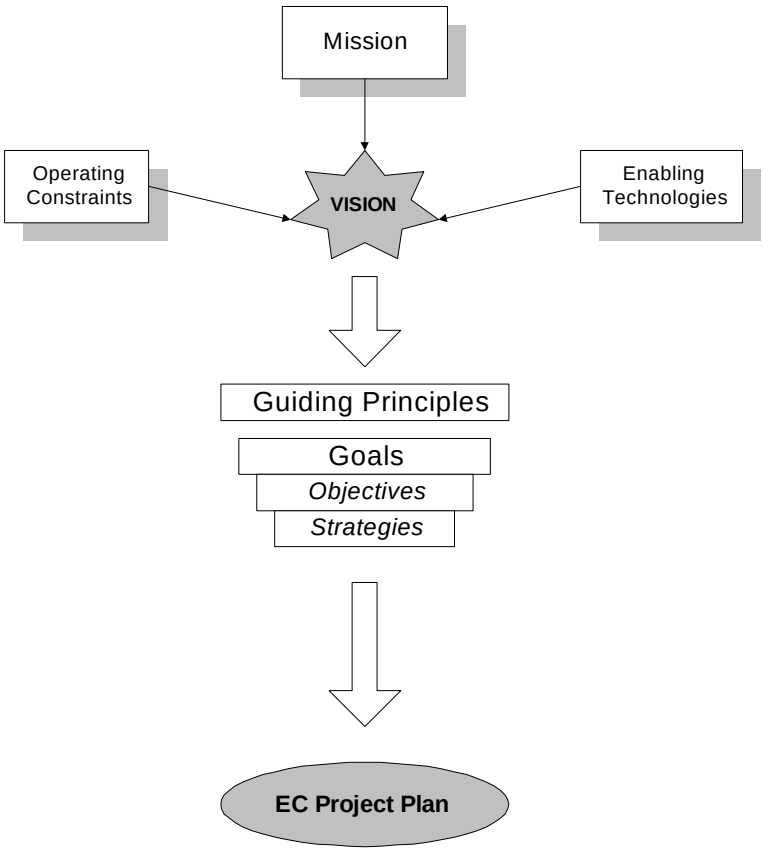

Figure 3-1 — EC Implementation Framework

VISION

Our vision gives our group criteria for success and a source of motivation. It states what our group is striving for:

> *We will achieve the paperless exchange of federal support information throughout the federal government and between federal agencies and their trading partners, to better utilize resources.*

IMPLEMENTATION FRAMEWORK

Achieving our vision requires us to determine our mission; to consider the role various operating constraints and enabling technologies will play in implementing our plan; to devise a careful planning process; and to establish the guiding principles, objectives, goals, and strategies that constitute our initial project plan.

Mission

Our mission states the role our group will play in providing services to our customers.

> *We will develop, promote, coordinate, and maintain the use of standardized data and the electronic exchange of federal support information.*

Operating Constraints

While achieving the EC vision, to maximize enabling technologies and scarce resources, we will account for budgetary, regulatory, or policy-driven constraints that limit our available options in performing the mission. Examples of such constraints include statutes, policies, budget, staff, trading partner capabilities, and management authority (sponsorship).

Enabling Technologies

EC-related technologies include any tool that enables the creation, transmission, or processing of business transactions by electronic rather than paper means. Specific EC-enabling technologies include those described in Chapter 1 (the Internet, WWW, E-mail, voice mail, EFT, and EDI) and many others.

Guiding Principles

Guiding principles are broad statements that define the values, concepts, purpose, scope, and implementation direction to be taken in achieving a vision. They are the foundation for developing program goals. We have designed the following guiding principles that support federal EC implementation and provide a framework for program and project management:

- We will improve quality, increase productivity, and control the cost of operations by removing non-value-added business processes and information exchanges. EC requires not only the automation of manual processes but also a fundamental change in business operations to eliminate redundant and obsolete processes.
- We will establish an efficient, flexible, and reliable EC architecture in conjunction with other federal agencies. The architecture will ensure that trading partners have easy access, design can be scaled up or down as needed, ongoing initiatives are exploited, a seamless transition to the federal architecture is achievable, resources are shared when feasible, and alternative approaches and choices are offered.

- We will incrementally expand the project until we achieve full EC. We must move beyond our initial successes into every aspect of our business processes and activity base.
- We will continue to promote decentralized project management. Central management authorities will empower implementing organizations with whatever they need to succeed and will intervene only when necessary. Central management will play a major role in preventing redundancyanalyzing, and controlling.
- We will ensure that any new operating or management items add value that exceeds any negative effect the items may have on all implementing organizations.
- We will develop standards to facilitate flexible implementation of electronic commerce. We will not only develop standards, but also perform standards testing and implementation.

Goals

Goals are general statements of what our group needs to achieve to realize our EC vision. We have set the following goals for the federal support EC initiative:

1. Establish a common face for exchanging federal support data.
2. Ensure that EC is implemented and conducted in a manner that effectively utilizes fiscal and human resources.
3. Improve information sharing among EC participants.

Objectives

Objectives detail specific areas requiring action in order to achieve a program goal. We have developed statements of objectives and grouped them in Chapter 4 with the goals they support. These objectives are realized by executing individual strategies.

Strategies

Strategies identify specific courses of actionthat will be taken to achieve objectives. In support of our objectives, we have developed associated strategies that describe how we intend to achieve our goals and objectives. Chapter 4 presents the individual execution strategies for each objective. We have designed them to ensure a cohesive strategic approach to developing and managing the EC project.

The Planning Process

The key to achieving our vision is a carefully planned approach to developing and maintaining the EC program. Figure 3-2 portrays our project planning approach. Implementing organizations are responsible for planning and managing individual projects as well as for providing input to the EC Committee's project plan. This team concept makes our EC planning a closed-loop process, because we will use the results achieved by the implementing organizations to develop goals, objectives, and strategies. This feedback ensures continuous improvement by allowing everyone to capitalize on successful pilot projects and makes this project plan a living document.

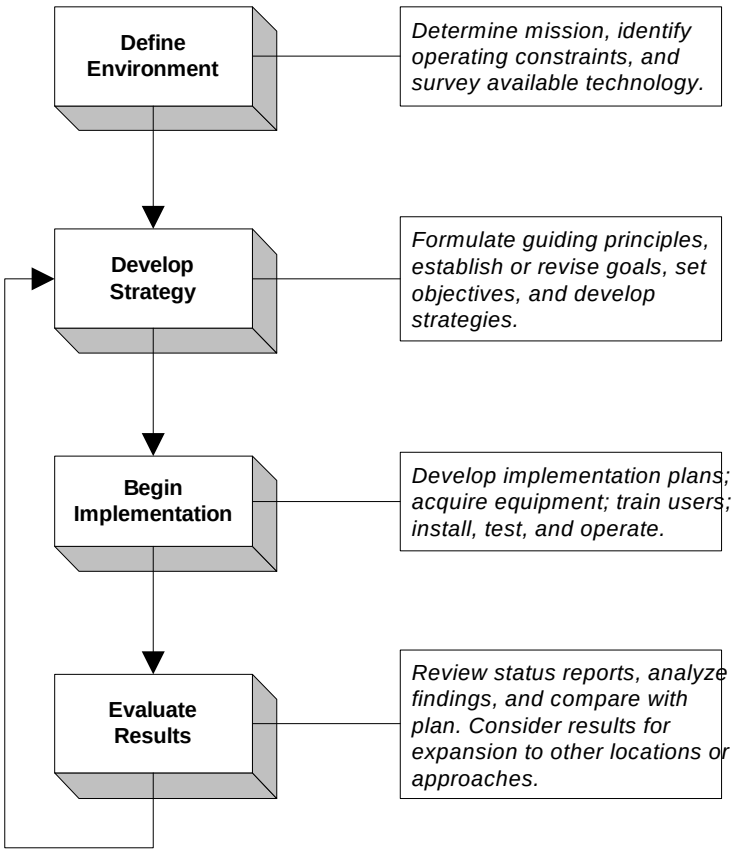

Figure 3-2 — EC Planning Cycle

Chapter 4 Goals, Objectives, and Strategies

We have described goals as general statements of what the EC Committee should achieve with respect to our overall project plan and guiding principles. Using the guiding principles presented in Chapter 3 as a foundation, we have developed goals that are designed to achieve the EC vision.

We have enumerated our goals as the following:

1) Establish a common face for exchanging Federal support data.
2) Ensure that EC is implemented and conducted in a manner that uses fiscal and human resources effectively.
3) Improve information sharing among EC participants.

The remainder of this chapter describes these goals in greater detail. We have identified objectives for each goal and have developed specific strategies for achieving those objectives. Following this chapter, Chapters 5 through 10 present our plan in terms of a typical EC project implementation plan. It divides our effort into six broad areas (project management, functional requirements, etc.), develops specific taskings, assigns responsibilities, and establishes milestones. This arrangement simply represents a different view of the same data. Every specific strategy found in this chapter will also be found somewhere in Chapters 5 through 10 (the reverse may not be true, as the subsequent chapters provide more detail).

GOAL #1 — ESTABLISH A COMMON FACE FOR EXCHANGING FEDERAL SUPPORT DATA.

Objective 1.1

For each electronic exchange (e.g., an application or an award) determine the core set of information that meets the criteria of all agencies.

Strategy:	Establish a joint data element dictionary.
Required Actions:	Combine all agency data requirements to create a data element dictionary.
Responsibility:	All agencies
Status:	Done for grants application (194).

Objective 1.2

Link data elements among agencies.

Strategy:	Map jointly determined data elements to agency policies and systems.
Required Actions:	Mapping
Responsibility:	All agencies
Status:	Ongoing

Objective 1.3

Work toward establishing a common electronic telecommunications architecture.

Strategy:	Assess the use of the FACNET and the Internet to exchange electronic information.
Required Actions:	Determine telecommunications architecture.
Responsibility:	EC Committee
Status:	In Progress

Objective 1.4

Establish EDI and WWW as baseline technologies but support additional approaches, including continued use of paper where it is necessary.

Strategy:	Use EDI and WWW as primary methodologies, but also offer the following: ♦ Continued support for the use of paper. ♦ Part EDI, part other (e.g., EDI and paper). ♦ EDI merged with other electronic technology for enriched text (e.g., SGML, PDF, external objects, and non-textual media).
Required Actions:	Determine which approaches and time frame your trading partners can use. Document overall plan.
Responsibility:	Each individual agency.
Status:	Ongoing

Objective 1.5

Obtain high-level policy and recognition of the federal support EC program.

Strategy:	Develop communication between our committee and other groups and federal organizations.
Required Actions:	Develop draft memorandum for the OMB regarding electronic federal support administration. Participate in the National Performance Review (NPR) program. Participate in the Federal Demonstration Project (FDP). Coordinate with the Office of Science and Technology Policy (OSTP). Submit recommendation to and take direction from BPWG.
Responsibility:	EC Committee
Status:	Ongoing

Objective 1.6

Where EDI transaction sets will be a part of the EC strategy, standardize their use for all participants and follow usage established by the federal EC initiatives.

Strategy:	Where possible use (modify) existing ICs and where necessary write new ICs that support agreed-upon data usage and submit them to the FESMC. These ICs will provide the common definition of how we will use EDI transaction sets.
Required Actions:	Tentative transactions sets will be announced as determined.
Responsibility:	
Status:	

Objective 1.7

Establish standards for the presentation and functionality of common WWW interfaces and systems (e.g., status information).

Strategy:	Develop coordination mechanisms to ensure interfaces for WWW systems.
Required Actions:	1) Determine and agree on candidates for common systems. 2) Develop standards based on agreed priorities.
Responsibility:	EC Committee
Status:	Ongoing

GOAL #2 — ENSURE THAT EC IS IMPLEMENTED AND CONDUCTED IN A MANNER THAT USES FISCAL AND HUMAN RESOURCES EFFECTIVELY.

Objective 2.1

Minimize the data trading partners must submit, and maximize use of that data.

Strategy:	Share data across agencies.
Required Actions:	Share a single electronic proposal submitted to multiple agencies. Require detailed budget data only when the application survives initial technical reviews. Establish an organization and personnel profile database of "basic" data that trading partners would update to cite data that would be the same across all applications. Encourage trading partners to establish software that supports standards.
Responsibility:	All agencies
Status:	Ongoing

Objective 2.2

Identify areas where EC can improve overall federal support business practices.

Strategy:	Maintain an EC common forum for sharing best practices.
Required Actions:	Make recommendations to the BPWG and the Federal Demonstration Project (FDP).
Responsibility:	EC Committee, BPWG, FDP
Status:	Ongoing

Objective 2.3

Work to enhance federal stewardship of resources.

Strategy:	Promote widest possible use of common EC processes throughout the federal support community.
Required Actions:	Work with Treasury, DFAS, etc. to develop a common EFT payment system and Post Award Activity.
Responsibility:	EC Committee
Status:	

GOAL #3 — IMPROVE INFORMATION SHARING AMONG EC PARTICIPANTS.

Objective 3.1

Perform implementation testing and provide supporting demonstrations for newly developed standards.

Strategy:	Perform standards testing with trading partners and other agencies.
Required Actions:	Each agency needs to perform standards testing between trading partners.
Responsibility:	Each individual agency
Status:	194 Transaction Set testing in progress

Objective 3.2

Exchange Federal support information.

Strategy:	Provide capability to submit the same proposal to multiple agencies.
Required Actions:	Implement methods for sending and receiving proposal data among individual agencies.
Responsibility:	Each individual agency

Status:	Testing in progress

Objective 3.3

Simplify means for agencies and trading partners to share status data.

Strategy:	Establish automated means of providing status.
Required Actions:	Create an on-line or interactive status database. Explore potential EDI transaction sets.
Responsibility:	EC Committee
Status:	

Objective 3.4

Coordinate intra- and inter-agency communications for grant and other agency business functions.

Strategy:	Coordinate with other federal EC initiatives.
Required Actions:	Participate in FESMC process.
Responsibility:	EC Committee, Each individual agency
Status:	On going

Objective 3.5

Establish agency commitments.

Strategy:	Agencies should establish a time frame for business process review, defining data requirements, testing, and developing implementation guides.
Required Actions:	Develop agency strategic plans.
Responsibility:	Each individual agency
Status:	

Objective 3.6

Promote trading partner involvement.

Strategy:	Establish a trading partner outreach program.
Required Actions:	Create a trading partner package that includes agency impleme n-tation guides and other documentation as needed.
Responsibility:	EC Committee, Each individual agency
Status:	

Chapter 5 Establish Project Organization

To succeed in implementing electronic commerce for grants we must treat it as a project: establish an organization, assign tasks and milestones, and monitor progress. However, a project of this size, involving numerous federal agencies and diverse trading partners, must also be flexible and provide for varying rates of implementation. Because of this, tasks affecting overall implementation will be assigned a single milestone, while other tasks affecting individual organizations will carry separate milestones for each participant. In these latter tasks the specifics of the approach will likely vary among agencies[5]. Lastly, like any project, grants EC will be dynamic and change over time. Our planning method must account for adjusting project goals and schedules based on changes in technology, federal policy, budgets, staff, and other factors.

In this chapter we will define our organization to manage implementation. In the following chapters we will define major areas of effort and identify some specific tasks within each.

ORGANIZATION

Our EC Committee will oversee the planning, coordination, communication, and overall direction of implementation. The committee will look to the Business Practices Working Group for major direction in matching EC capabilities with the BPWG's efforts to reengineer processes. We will also provide the group with status reports, presentations, and recommendations where we believe EC can improve grants administration business processes.

EC Committee

The EC Committee will work with other government agencies, cross-agency groups, and our trading partners. For most issues — such as those involving all agencies requiring immediate and broad-based input — it will manage the project as a committee of the whole. Such issues include the following:

- Policy
- Review and approval of transaction sets
- Strategic plan
- Committee objectives and budget priorities.

However, we will establish subgroups as needed. Currently, we have subgroups of sponsoring agencies and assigned or volunteering individuals.

[5] For example, approving the grant application implementation convention is a joint effort, with everyone participating simultaneously and with a single milestone schedule. However, selecting EDI translation software is an agency-by-agency choice with varying schedules.

SPONSORING AGENCIES

Projects relating to certain technologies, processes, or types of information would be the responsibility of one or more lead agencies, which would coordinate the project operation and funding, and report findings and progress to the EC Committee.

For example, the following will be among the initial projects and sponsoring agencies:

- University Demonstration Project -- Department of Energy (DOE)
- Disclosure Reporting Project -- National Institutes of Health (NIH)
- Individual Profile Prototype -- NIH
- Internet Use Projects -- NSF and NIH
- EDI/EFT Project -- ONR.

MANAGEMENT TOOLS

This project plan is our primary tool for communicating and documenting our goals and plans. It will be reviewed and revised periodically. We will also maintain the project milestone schedule on a PC-based tool.

Publish and Revise This Plan

Required Actions:	Update and publish this plan as needed.
Responsibility:	LMI, EC Committee
Status:	First publication

Maintain Project Schedule

Required Actions:	Update project schedule as needed.
Responsibility:	LMI, EC Committee
Status:	Ongoing

Chapter 6 Identify Functional Requirements

One major area of effort will be for organizations to identify their functional requirements. [In the context of grants EC, that means determining how to more effectively and efficiently manage the grants administration process.] Specifically it includes how to use electronic grants to replace paper-based processes.

This effort encompasses a wide range of possibilities. At one end of the spectrum, a federal agency could simply print the received data and then continue to process it in the traditional paper mode. At the other end of the spectrum, an agency could launch a major business practice reengineering effort — which will result in greater savings and efficiencies, but also requires investment dollars and organizational energy. Each organization must determine its individual goals and capabilities.

BUSINESS PROCESS REENGINEERING GOALS

Ideally, each organization will capitalize on the federal support EC project to re-engineer at least to some extent. Reengineering should begin with broad organizational goals such as

> *We will reduce the time required to process a grant application through to either rejection or award while at the same time reducing our cost to process the application.*
>
> or
>
> *We will reduce the burden placed upon the applicants in preparing an application.*

Many of these goals or more detailed objectives under the goals may not be EC-based. For example, one means for reducing the burden upon applicants would be to eliminate the inclusion of a detailed budget in the initial proposal. Only those proposals that have sufficient scientific merit, focus, etc., would follow up with a detailed budget. **EC should not be a goal in and of itself; rather it should be just another tool in the reengineering toolbox.** Equally, however, electronic data is the driver in eliminating the large costs and delays brought on by paper-based actions such as data entry, reproduction, and filing.

While the above paragraphs use research grant applications to illustrate reengineering concepts, they apply to all phases of the grants administration cycle: presolicitation; application, evaluation, and award; post award administration; and closeout. They apply to both research grants as well as all other types of grants. Most importantly, reengineering should be performed on both sides of the partnership. Just as for federal agencies, applicants can better contain costs and make use of their grants data through reengineering.

REENGINEERING ACTIONS

Once overall agency goals are developed, they must be turned into an action plan. Large reengineering efforts will require teams to develop the new process; revise procedures; retrain and revise documentation; major application programming; possible hardware acquisition; possible major agency policy changes; and a myriad of other actions. Some of the key actions have been identified in the boxes below.

Determining organization functional requirements is done on an individual organization basis. Consequently, organizations must develop independent plans and milestones. However, there are numerous common attributes to preparing grant applications and performing the work on the trading partner side, and in initiating, evaluating, awarding, and administering grants on the agency side. Sharing ideas, information, expertise, and experience, across organization will benefit everyone. Sharing can extend beyond information. Software and hardware can also be shared either among organizations involved in grants or among EC supported business functions in the same organization.

One of the key outcomes of determining functional requirements is the data to be used by the organization including the data to be exchanged with trading partners. **Data exchange is both an agency-by-agency and a joint issue.** The EC Committee has already begun to address this issue based on current agency capabilities by developing a joint research grant application data dictionary and implementation convention. We are also proceeding on to data requirements for other exchanges in the procurement area (see Chapter 7). We must recognize that these joint requirements may alter as agencies proceed down the re-engineering road.

Determine Agency Reengineering Goals

Each agency should set goals for its individual reengineering projects.

Required Actions:	Determine system reengineering goals. These goals should be included in agency implementation plans.
Responsibility:	Each individual agency
Status:	

Develop Agency Implementation Plan

Each agency should prepare an implementation plan for reengineering its business practices.

Required Actions:	Write an implementation plan.
Responsibility:	Each individual agency
Status:	

Establish Data Requirements

Identify all data elements required to accomplish federal support EC data flows.

Required Actions:	Establish a joint data element dictionary.
Responsibility:	EC Committee
Status:	In progress

Applications Systems Modifications

Identify needed enhancements to application systems and formulate a plan for implementing them.

Required Actions:	Determine whether any application system modifications are needed.
Responsibility:	Each individual agency
Status:	

JOINT FUNCTIONAL REQUIREMENTS

Organization Profiles

Some reengineering of the process will be on a joint basis. We are exploring the possibility of establishing a central database for a standard organization profile. This database would include address, required identification numbers, representations and certifications, and other information that is relatively static, but yet is typically required on every application. In the new environment, organizations would update this information only as it changes, and federal agencies reviewing applications would download it as needed.

Invention Reporting

NIH is developing an application, EDISON, to record invention reporting disclosures. It is developing this system as a subeffort under the federal support EC effort and will incorporate other organizations' requirements into the system. NIH has already made agreements with NSF and the Environmental Protection Agency (EPA) to support their invention reporting data collection.

Required Actions:	Create a joint invention reporting dictionary.
Responsibility:	All — NIH will lead.
Status:	In progress

Required Actions:	Map dictionary to transaction set and develop IC.
Responsibility:	LMI
Status:	

Future Joint Efforts

These efforts may be extended to other joint efforts in the future, such as an individual profile database or a joint location for displaying available grants.

Chapter 7 Complete Operating Concept

This part of our project plan presents a complete operating concept for implementing EC in grants administration. For grants EC we will also discuss additional means for exchanging grants-related data electronically.

EDI APPROACH

Transmission of EDI transactions requires extracting data from the source database, converting the data into EDI format, and then initiating the communication session. This section briefly describes key components of this process.

Translation Software

EDI translation software converts data between agency-specific file formats and the national standard EDI format (X12), which is used to communicate between trading partners. Translation software is readily available commercially. Packages vary immensely in terms of hardware and operating system supported, throughput capacity, features, and cost, so it is important for each agency to shop for the most appropriate one.

Additionally, custom software will usually be needed to move transaction data between the agency grants database and the EDI translation software. This software (typically called interface software) can also edit the data and prevent errors from entering the database. If the organization has a sophisticated EDI environment, the interface software may also perform other functions, such as routing different incoming transactions to the appropriate database (e.g., grant application, disclosure reporting, or finance). Depending on the type of database, the brand of translation software, and the size and complexity of the EDI operation, application interface software can range from a single, simple program to a series of complex modules.

Leveraging EDI Operations

The effort to exchange grants data via EDI clearly involves work and cost. But grants EDI will not be done in isolation. For example, all federal agencies will also be using EDI for procurement. The Treasury Department and the Defense Finance and Accounting Service are both developing EDI projects to process financial data. As these and other organizations make the commitment to EC/EDI, the investment costs will be leveraged across many efforts.

Costs can also be distributed in other ways. For example, translation hardware or software can be shared among one or more agencies or supported by the Defense Information Systems Agency's EC/EDI gateway computers. DoD is developing a single standard contracting system to be used by all of its components to replace several military service-specific systems.

Grant recipients also will be making other EDI efforts. As of fall 1994 nearly 600 institutions of higher education and secondary schools were participating in an EDI program to exchange student transcripts. Many universities and colleges also exchange student loan data via EDI. State and local governments use EDI to make purchases, receive invoices, pay bills, and process tax and other data. Resources invested in these efforts will reduce the costs of grants operations and vice versa.

WORLD WIDE WEB

The World Wide Web provides a vast resource to display and exchange data for grants. Among the most common tools are home pages that display such information as

- available grant opportunities,
- tools for completing grant applications,
- points of contact for information and assistance, or
- recent awards and accomplishments.

One of the powers of the home page is that information locations can be linked so users can obtain more information on a given or related subject. (See Appendix B for a list of agency home pages.)

The Internet and WWW also allow more sophisticated programs such as data entry (e.g., as filling out an application) or transferring data between computers. The National Science Foundation has developed computer programs to allow users to input a research grant application using the WWW (the FastLane project, described in more detail in Chapter 8). Similarly NIH is using the Internet to support its EDISON project, which allows organizations to report inventions and patents resulting from work supported by NIH grants (see Chapter 8 for more details).

OTHER EC TECHNOLOGIES

Many other less standardized approaches to EC are already being used by federal agencies and trading partners. In many cases the trading partner logs onto an agency computer and enters data. Another technique is for an agency to mail a PC-based application to a trading partner; the trading partner runs the program, enters the required data, and returns the program by mail to the agency. These approaches typically require the reentry of data already in trading partner computers and possess other drawbacks, but they are still an improvement over the exchange of paper.

CONTINUED USE OF PAPER

For many trading partners with fewer resources or technical capabilities, or which have little annual activity, paper may still be the medium of choice for an indefinite period. Federal transition to EC for grants administration will be continuous and will continue to support all segments of the trading partner community.

TELECOMMUNICATIONS STRATEGIES

Regardless of the specific approaches to EC, strong telecommunications capabilities will be a requirement. In the Federal Acquisition Streamlining Act of 1994, Congress established the Federal Acquisition Computer Network (FACNET) to support the movement of procurement transactions via EDI, including solicitations, receipt of quotes, awards, follow-up modifications and status, and payment (see Figure 7-1). FACNET is to provide all federal agencies with the following:

- A backbone telecommunications network to transmit their transactions.
- EDI gateways to route, archive, and translate transactions.
- Network entry points (NEPs) to distribute transactions to VANs [6]
- Certification of commercial VANs to ensure their technical capabilities. (Note: all end-user trading partners must contract with a registered VAN.)
- Single-point registration for non-governmental organizations that wish to contract with any federal agency. This process is electronic and uses a central registration data bank.

A key point of the FACNET approach is for the commercial VANs to display federal RFQs on an electronic bulletin board These bulletin boards can sort the RFQs by commodity or service, geographic area, originating agency, and a variety of other factors. Such capabilities enable vendors to conveniently identify solicitations that they can effectively respond to.

One telecommunications strategy for the grants EC initiative is to use FACNET. This includes establishing one or more bulletin boards to display and sort all available grant opportunities.

Using the Internet

Numerous alternatives to FACNET exist. One of the most prominent is for each awarding agency to establish direct point-to-point communications with trading partners via the Internet or other communications networks (e.g., dial-up modems and commercial telephone lines). This option has appeal to the research grant trading partner community because they are familiar with the Internet and it may reduce communications costs and the expense of a VAN. (Note: Use of the Internet and VANs is not mutually exclusive. The FACNET NEPs can communicate with the certified VANs via the Internet, and several VANs offer Internet connections to their customers.) Another telecommunications strategy would be for grant awarding agencies and trading partners to establish a single NEP or VAN to support all grant EC operations. The University of Texas is providing this service for the SPEEDE/ExPress community.

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[6] VANs provide mailbox services (storage and forwarding), routing, archiving, and a variety of other services to commercial organizations with EDI programs. On the government side the combination of gateways and NEPs performs similar functions for federal organizations.

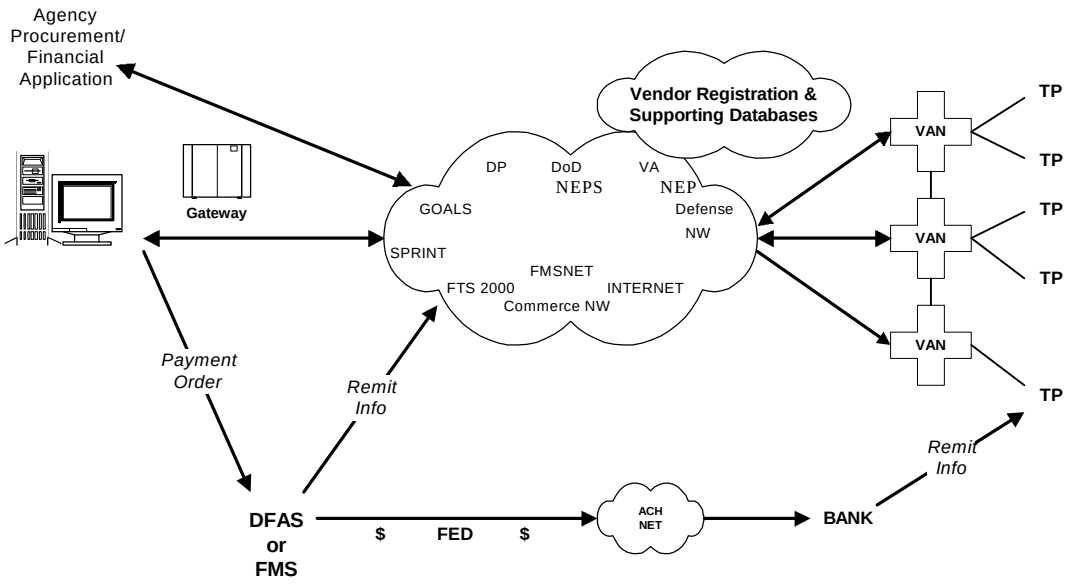

Figure 7-1 — FACNET

SECURITY ISSUES

Adequate security measures must be applied to protect the data and verify its authenticity. Security, of course, means not only safeguarding against hacking and other forms of deliberate damage to the data, but also protection against system failures, natural disasters, and other accidents. Among the protections, we must ensure that

- the transaction originated from the proper source and by an authorized individual;
- transmissions are not copied or interfered with enroute — a particular concern on the Internet, as the message may travel through several host computers as well as the communications line;
- transmissions reach the proper receiving application and are appropriately logged and acknowledged; and
- data are archived in a safe and secure manner while stored in the computers.

Many of the strongest security solutions require the same encryption or other security approach on both sides of the transmission. This is costly and complex to implement in a diverse trading partner environment. Different approaches to security will be researched, evaluated, and reviewed among the agencies and with the trading partners before any specific approach is implemented. The university demonstration project has a responsibility for examining security issues involving trading partners, as well as agencies. The Electronic Research Administration (ERA) technical committee is also examining security issues.

DESIGNING AND IMPLEMENTING THE OPERATING CONCEPT

The options described above, and perhaps others, must be investigated and decisions made. Part of the investigation must consider the relationship of the grants EC program with the overall agency EC process. Another aspect of the decision-making process is that some actions, like developing interface programs and obtaining translation software, are agency-specific while others, such as telecommunications strategy, tend to affect the overall trading partner community; benefits will be gained by standardization. The boxes below identify a few of the more significant tasks.

Determine Operating Requirements

Required Actions:	Identify specific hardware, software, telecommunications, facility, and manpower requirements.
Responsibility:	Each individual agency and university
Status:	

Hardware Specifications

Required Actions:	Determine the hardware required to support planned EC applications.
Responsibility:	Each individual agency and university
Status:	

EDI Translation Software Requirements

Required Actions:	Select EDI translation software based on a number of considerations, including final operating concepts, functional requirements, and hardware capabilities.
Responsibility:	EC Committee; each individual agency and university
Status:	

Telecommunications Strategy

Required Actions:	Develop a strategy for communicating with internal and external trading partners.
Responsibility:	Each individual agency and university
Status:	

Trading Partner Submission Format

Required Actions:	Establish preferred and supported formats for transactions. Federal agencies will encourage EC, but there is no perceived date to stop using paper. The following options will continue to be offered to trading partners: • EDI as the primary methodology • Part EDI, part other (e.g., paper) • EDI plus electronic technology for enriched text • Other electronic media such as the WWW.
Responsibility:	Each individual agency and university
Status:	

Chapter 8 Agency EC Implementation Initiatives

Testing and implementation will be phased over several years, as agencies and trading partners individually obtain the resources to reengineer and establish EC programs. This chapter describes the plans for those agencies that are establishing demonstration projects and testing, and implementing EC within the next year.

DEPARTMENT OF ENERGY

Electronic Research Administration

The Federal Information Exchange (FIE) and the Office of Energy Research/Department of Energy (ER/DOE) are conducting a two-year demonstration project to standardize the method of electronic generation, submission, and processing of university research applications to ER/DOE. The goal of the Electronic Research Administration (ERA) project is to automate the complete cycle of grant activity for computer-to-computer communication. Specific goals include the following:

- A single standard for federal budget and application data
- A single source for funding information
- Local control
- Improved data management (reporting, error checking, correction)
- A simplified procedure for certifications
- Automated status checking and notification
- Quicker turnaround
- Controlling costs
- Reducing burden
- Centralizing data
- Reengineering universities to prepare for EC and EDI implementation
- Security and text transmission.

ER/DOE's focus is on the trading partner, as this project seeks improvements for universities, DOE, and all federal agencies.

Testing Schedule for the 194 Transaction Set

DOE will receive test shells of a 194 transaction set from eight demonstration centers in early 1996. Live shells will be received in the second half of 1996.

THE NATIONAL INSTITUTES OF HEALTH

Electronic Research Administration

NIH is committed to ERA to improve administrative and program operations through information technologies. The electronic "common file" is envisioned as the electronic interface between the NIH and the grantee community and would be the repository for all information generated during the life cycle of each grant. This database would be accessible to authorized grantee and NIH staff, who could review and add information as required. Proposed components of the system include the funding opportunities, application shell, institutional profile, status system, notice of grant award, invention reporting, scientific abstracts, progress reports, and other required reporting.

IMPAC II

NIH is developing IMPAC II, a computer-based information system, to manage extramural research information. The system will provide each initial review group (IRG), advisory council, institute, center, and division with the necessary on-line automated tracking and assistance required for each step in reviewing competing applications and selecting and monitoring award recipients.

EDISON

The Bayh-Dole Act of 1980 requires NIH to track the inventions, patents, and licenses that have resulted from NIH funding agreements. To better comply with that law, the Office of Policy for Extramural Research Administration (OPERA) has developed EDISON, an on-line information management system for extramural inventions.

EDISON involves a client-server technology, both NIH staff and the grantee will access a common file in a real-time, interactive setting. The common database file with the grantee's records resides on a centralized Sybase server at NIH. With the proper authorization information and password, a grantee will be able to access this file system in real time to add or modify an individual extramural invention report (EIR) or the patent and licensing information associated with it. The EDISON system currently employs www-based technology, and is expanding to accomodate EDI computer-to-computer technology. Thus, grant recipients will be provided a choice for disclosing inventions and patents data to NIH.

Testing Schedule for the 194 Transaction Set

NIH will receive test shells of a 194 transaction from eight demonstration centers through September 1996. Plans currently include testing the receipt of live application shells beginning sometime in the Fall of 1996.

NATIONAL SCIENCE FOUNDATION

FastLane

In FY94, the NSF started a three-year experimental project to explore methods to redesign and streamline the way NSF does business with the research, education, and related communities. The collection of pilot projects has been called FastLane, which continues NSF's long-standing emphasis on reducing the administrative burden on NSF staff and institutions, and improving processes through technology.

The FastLane project automates the full gamut of research administration activities, including announcements of funding opportunities, submission and review of proposals, award announcements, post-award administration, financial transfers, and making the content and results of the research available to other researchers or the public. It uses WWW servers and browsers to provide on-line access to NSF systems. Institutions will be able to interact with NSF using both on-line and batch (EDI) transactions. For instance, an institution could submit a request for a no-cost extension using an interactive system, or they could send an EDI transaction via the on-line system.

Concept for Operations of EDI

NSF FastLane servers will receive the various X12 transaction sets from NSF's trading partners. (This is a Sun Sparc server with a Sybase database.) Data will then be transferred to NSF's corporate database on an IBM 3090. The translation software will most likely run on the FastLane server, although that has not been decided. The data will then be translated into the NSF internal structures for processing. NSF has been doing this under the FastLane project already, it will not be a great endeavor to do the same for EDI transaction sets. The NSF corporate database was reengineered between 1990 and 1993, so the agency does not expect any problem with legacy systems in terms of processing.

Testing Schedule for the 194 Transaction Set

NSF has committed to receiving and processing the 194 transaction sets. It expects to fund the project to develop the translation software during the first or second quarter of FY96. Test proposals will be received in the second half of FY96. NSF has not decided on the EC architecture for receiving and sending EDI transactions. The strategy will be to utilize the architecture being developed by DOE, NIH, and ONR, and to maintain consistency with the ongoing Electronic Commerce Acquisition Program Management Office (ECAPMO) government-wide efforts. Because the NSF corporate database was reengineered between 1990 and 1993, it is not expected that significant changes to internal databases will be required to support the receipt and processing of the 194 transaction sets.

OFFICE OF NAVAL RESEARCH

Integrated Navy Research Management Information System

The Office of Naval Research is implementing a new Integrated Navy Research Management Information System (NRMIS) that will feature a module for EDI communication of proposals, awards, administration, and payment data. This feature is planned for development by June 1996.

Electronic Payment System

ONR is also beginning to implement an EDI/EFT electronic payment system, which began as a joint project with the Navy Regional Finance Center in 1989. EDI and EFT have subsequently been endorsed by the Director of Defense Research and Administration for making payments at universities, because they reduce delays and improve the accuracy of financial data and because they are it is flexible enough to process both contract and grant vouchers.

Two years of planning, design, and testing concluded successfully in 1991 with the launch of the phase 1 pilot program. Besides ONR and the newly established DFAS, it included the Massachusetts Institute of Technology (MIT) and the University of Southern California.

In 1994 phase 2 of the program progressed with expansion to all of ONR's field contract and grant administration offices, and the recruitment of six additional schools in the system. These schools were the California Institute of Technology, the University of Utah, Oregon State University, the University of California at San Diego, the University of Illinois at Urbana-Champaign, and the University of Southern California.

Additional institutions that have since agreed to join include SUNY-Buffalo, the University of Texas at Austin, the University of Miami, the University of Washington, the University of Virginia, and the Center for Naval Analyses. In fiscal year 1995 an estimated 5,090 vouchers worth $179 million were paid through the system. Traffic in FY96 is expected to reach at least $281 million.

Typical benefits of the EDI and EFT electronic payment system are automatic accounting and tracking of transactions, reduced clerical and handling time, and prompter payments. The time from voucher submission to receipt of payment has been reduced from an average of 60 or more days to about 5 days.

The voucher handling is a pure EDI (ANSI ASC X12) process, using the 810 Invoice, the 997 Remittance Advice, and 820 Payment Notification. Communication is through commercial VANs. The electronic funds transfer is a National Automated Clearing House Association (NACHA) transaction that deposits funds into the payee's bank account.

Testing Schedule for the 194 Transaction Set

As a signatory to the DOE Interagency Agreement for Demonstrating Electronic Research Administration with Universities, ONR is sponsoring the participation of UCLA as a test site and expects to receive test shells of a 194 transaction set from that campus by January 1996. ONR plans to receive live shells by June 1996 and complete electronic applications by June 1997.

ARMY RESEARCH OFFICE

Testing Schedule for the 194 Transaction Set

The Army Research Office (ARO) anticipates receiving test shells of the 194 transaction set from various university trading partners before the end of 1995. It is hoped that complete electronic applications will be able to be received in 1996.

ENVIRONMENTAL PROTECTION AGENCY

Electronic Grants Management

EPA is initiating steps to apply electronic commerce to its State grant activity. The Environmental Council of States (ECOS), through a grant from EPA, has taken the first step by conducting workshops. The purpose is to familiarize States with the goals and general operating concepts of EC, describe approaches to EC as applied to State grants activities, and solicit their input.

Concurrent with these workshops, EPA is developing plans to work with two or three states in piloting one of the approaches to electronic commerce. At this time, it is envisioned that the system be based on a groupware product that would allow for electronic transfer of grant applications, work plans, and reports via the Internet. Discussions with the pilot states are scheduled for Spring 1996 with development and testing to follow immediately.

DEPARTMENT OF TRANSPORTATION

The Federal Railway Administration is beginning a small pilot for electronically transmitting two forms (SF424 — Grant Application and TFS5805a — Request for Funds) used in its grant application process. The pilot will begin with two universities and two state governments. The WWW and hypertext markup language will be used as the media of transmission of the electronic data.

DEPARTMENT OF THE TREASURY

While not a part of the Federal Support EC Committee, the Department of the Treasury is undertaking an EC project that is of significant interest to the grants process. The Treasury's Automated Standard Application for Payments (ASAP) project will provide for an EC system for awarding agencies to pre-approve payments and for grantee organizations to interactively requests drawn-down payments and receive the funds in a pre-approved account. Using ASAP will allow the funds to be received on a next business day basis rather than the several days currently required. The Treasury Department is now operating the system with NSF and the EPA and several state and university organizations, and plans to rapidly expand the effort.

Chapter 9 Trading Partner Outreach

The grants EC project cannot succeed without the full and earnest support of the trading partner community. [The trading partner community includes institutions of higher education, state and local governments, and other participants in research, block, formula, discretionary, and other forms of grants and assistance.] To obtain this level of support, the EC process must be understood to benefit the recipients as well as the federal agencies. Our intentions and plans must also be clearly understood by our trading partners. The Federal Demonstration Project will be the principal, official forum for business process reengineering and the testing of prototype and pilot EC components. We need to continually communicate all of the following:

- Testing requirements and procedures.
- Why federal agencies must move away from the present paper-based processes.
- EC is not just cost containment, but also brings new capabilities and improved performance.
- EC and process reengineering will require an investment cost by the recipient, but it will also bring long-term savings and make them more efficient in pursuing grant opportunities.
- Investment and operating costs can be distributed across business functions.
- The recipient community will be fully involved in designing, testing, and implementing EC solutions.
- The transition will be methodical and will support not only organizations that desire to move quickly, but also those less able to do so.
- Current project status, future plans, successes, and obstacles. Information sharing by those in the lead for planning, testing, and implementation will be crucial to smoothing the path for those who follow.

Trading partner outreach began in 1994 with several presentations, including the NCURA, SRA, COGR, and the NGMA.

University and research organizations participating in the ERA demonstration received briefings and training in February, April, and July 1995. The EPA plans a series of briefings for state environmental representatives in early 1996. In 1996 we will also begin developing a more formal trading partner outreach program as identified in the task boxes that follow.

TRADING PARTNER IMPLEMENTATION STRATEGY

Required Actions:	Formulate a strategy for soliciting and working with trading partners. The strategy should include development of an information package and procedures for trading partner participation.
Responsibility:	Trading partner subgroup, university demonstration participants
Status:	

TRADING PARTNER INFORMATION PACKAGE

Required Actions:	Prepare an information package for all prospective trading partners. The package contains such information as agency implementation guides, operating concepts, EDI passwords and codes, points of contact, and EDI trading partner agreements.
Responsibility:	Trading partner subgroup
Time Frame:	
Status:	

SOLICITATION OF TRADING PARTNERS

Required Actions:	Solicit trading partners to participate in the EC program.
Responsibility:	Trading partner subgroup
Status:	

EXECUTION OF TRADING PARTNER AGREEMENTS

Required Actions:	Prepare and distribute the necessary trading partner agreements.
Responsibility:	Trading partner subgroup
Status:	

Appendix A Project Milestones

MILESTONE	DATE DUE	DATE COMPLETE	STATUS
First test of 194 transaction subset	Aug 1995	Sept 1995	
Solicitation data requirements	Sept 1995	Oct 1995	Done
Approval of 194 Transaction Set	Oct 1995	Oct 1995	Approved
Draft 840 Solicitation IC	Jan 1996	Jan 1996	Done
850 Award data requirements	Jan 1996		In progress
Invention Reporting data requirements	Feb 1996		In progress
Draft Invention Reporting IC	Feb 1996		In progress
838 Trading Partner Profile data requirements	Feb 1996		In progress
Draft 838 Trading Partner Profile IC	Feb 1996		
Progress Reporting data requirements	Feb 1996		In progress
Publish EC project plan	Feb 1996	May 1996	Done
Develop Data Dictionary Application/Award data elements	April 1996		Done
855 Award Acknowledgment data requirements	July 1996		
860 Award Modification data requirements	July 1996		
865 Award Modification Acknowledgment data requirements	July 1996		
Reengineering of 194 in response to 838 developments	Aug 1996		
Identify EDI translation software	May 1996		
Exchange “live” shells between ERA participants and several universities	Jun 1996		
Draft trading partner outreach plan	Jun 1996		
Expand to include other EDI-capable universities	Jan 1997		

Appendix B EC in Action

In pursuit of the policies described in this project plan, and because of growing operating pressures to do so, federal agencies are putting EC into action and using it as a tool for reengineering their business processes.

Federal Initiatives

Individual federal agencies and organizations have been developing EC programs for several years now. A few of the largest users are the General Services Administration, the Department of Veterans Affairs, the Internal Revenue Service, the Customs Bureau, the Treasury Department, and DoD.

An early EDI effort by the Defense General Supply Center (DGSC) makes a good case study of the benefits that can be achieved by combining EC with reengineered business practices.

The supply center, located in Richmond, Va., buys selected products for DoD and then distributes them to DoD customers as needed. DGSC typically used to buy large quantities of a material in order to obtain volume discounts and to ensure that material was available when requested. The material was bought from commercial manufacturers, shipped, and stored in a central warehouse in Richmond. As DoD users requested individual items they were pulled from the shelves and shipped again.

DGSC revised its practices by dramatically reducing the amount of military film inventory maintained. Now when requests for film arrive they are forwarded electronically to the manufacturers, who ship them directly to the end-users. DGSC has saved approximately $7 million annually in reduced warehouse handling and transportation costs for film alone. The supply center has extended the effort to other difficult commodities such as batteries, chemicals, and light bulbs. While saving money, performance has also improved, as the average time to deliver the material to the end-user has been cut in half.

By far the largest federal EC program will be in procurement, as agencies respond to the President's memorandum and to FASA. In this application agencies will release requests for quotations (RFQs) for goods and services as EDI transactions. The transactions will typically go first to specialized commercial EDI service organization called value-added networks (VANs) or value-added services (VASs). The VANs will display the RFQs on bulletin boards. A VAN's customers (federal contractors) can review all applicable quotes and select the ones they wish to reply to. Each reply will cause the VAN to send an EDI transaction containing the quote back to the soliciting agency. At the agency, automated computer systems will aid buyers in making a selection and issuing an award. The award and any follow-up transactions will all be exchanged between vendor and agency using EDI transactions. Full implementation of this project will dramatically change the way companies do business with the federal government.

Another federal EDI initiative related to grants is the efforts by the Treasury Department and the Defense Finance and Accounting Service (DFAS) to receive EDI invoices and use EFT for as many payments as possible.

The Federal Support Community

As organizations review this document and begin to plan, it will be clear that electronic grants administration involves start-up and on going operating costs, and organizational change. To some it will also appear to be sailing into new and uncharted waters. Yet EC is already being used across the entire spectrum of organizations in the federal support community, including state and local governments, universities, and hospitals. Below we describe many business areas where our trading partners have already invested in EC. Extending these existing capabilities into grants administration, or extending them from grants administration into other areas, will leverage the costs and multiply staff expertise and savings across different projects.

STUDENT TRANSCRIPTS

The Standardization of Postsecondary Education and Electronic Data Exchange (SPEEDE)/Exchange of Permanent Records Electronically for Students and Schools (ExPress) project is a consortium of colleges, universities, and secondary school systems that exchange student transcript data via EDI. As of October 1994, 582 institutions and organizations were participating in the project. The following are some of the highlights of the project:

- In the state of Florida more than 250,000 student records were exchanged via EDI within a single year, while the University of Texas-Austin alone received 40,000 transcripts.
- One university reports that the cost of generating a transcript has fallen from more than $5 in paper mode to $.05 electronically. EDI transaction sets also exist to exchange student loan data.

FEDERAL PROCUREMENT

Many colleges, universities, and other research organizations sell services and products to the federal government. The organizations will be participating in the federal procurement EC program, where the government is mandating EDI formats and the federal EC telecommunications architecture as the only acceptable way to exchange procurement information.

OTHER UNIVERSITY EFFORTS

Other examples of university involvement in EDI include Vanderbilt, Missouri State, and other universities that are receiving student loan data and EFT from banks. Dartmouth and other university libraries are working with subscription agencies to order journal subscriptions and place claims for missing issues through EDI.

HEALTH CARE DATA

Hospitals have been participating in EDI for a number of years, primarily to procure supplies. EDI is also being used in processing health claim forms. The federal government is working with the insurance industry to establish a universal electronic health claim insurance form. DoD and others are developing electronic representations of X-rays and other patient information. Maintaining patient data electronically dramatically simplifies record retention and retrieval, and supports computer-enhanced analysis techniques. It also simplifies transferring records between facilities.

STATE AND LOCAL GOVERNMENTS

State and local governments use EC in the same way as the federal government. Solicitation, award, invoicing, and payment for supplies and services are being handled by EDI. Fairfax County, Va., which has an extensive EDI program, was receiving separate bills from the local utility for electricity consumption at each of its facilities. Consequently, the county was making separate payments for each bill. After working with the utility, the county now receives a single, consolidated bill via EDI, with individual facility usage detail, and makes a single payment. The exchange of commercial tax data is also being conducted or planned by states such as Minnesota and South Carolina.

Appendix C EDI Standards and Conventions

One of the primary outcomes of identifying the functional requirements (Chapter 6) is identifying the federal agency's data requirements for each type of transaction: announcement of grant availability, grant proposal, grant award, etc. The transaction purpose and specific data requirements then have to be matched against existing ANSI ASC X12 EDI transaction sets.

MAP DATA REQUIREMENTS TO ANSI EDI STANDARDS

Where a suitable match is found, each data element must be mapped to a specific location in the transaction set. This mapping is documented in an EDI implementation convention. In some cases no suitable X12 transaction set can be found. In these circumstances a new transaction set must be designed and submitted to ASC X12 for approval. This was the case for the electronic grant application. In conjunction with LMI, in October 1994, we began designing a new transaction set to convey grant application data. This transaction set, ASC X12 number 194, was approved for publication in October 1995.

In other cases, an overall appropriate transaction set can be found, but specific data elements cannot be mapped into it. In these cases we will submit data maintenance (DM) requests to ASC X12 requesting revisions to the standards to accommodate our additional data requirements. The task boxes below identify the status of this work.

Map Data Requirements

PRE-AWARD

Transaction Set/Application Name		Status
194	Application — Research Grant	Done
194	Application — Non-Research Grant	Done for SF424 Cover sheet
840	Solicitation	Done
850	Award	Done
855	Award Acknowledgment	Done
860	Award Modification	Done
865	Award Modification Acknowledgment	Done
838	Trading Partner Profile	Done
870?	Status Inquiry Response	Tentative
838?	Organizational Profile	Tentative
	Peer Review Disclosure	Not scheduled

Transaction Set/Application Name		Status
	Individual Profile	Not scheduled

POST-AWARD ADMINISTRATION

Transaction Set/Application Name		Status
810	Payment Request	Done
820	Remittance and EFT	Done — Treasury
194	Disclosure Reporting	Done pending review by FESMC-PWG
194	Progress Reporting	Done pending review by FESMC-PWG
?	Financial Reporting	Not scheduled

CLOSEOUT

Transaction Set/Application Name		Status
194	Final Progress/Technical Report	Done pending review by FESMC-PWG
?	Final Financial Report	Not scheduled
?	Final Disclosure/Benefits Report	Not scheduled
?	Federal Final Property Report	Not scheduled

Data Maintenance to X12

Transaction Set/Application Name		Status
194	Application - Research Grant	Published by X12, December 1995
194	Application - Disclosure Reporting	Code adds not submitted yet

WRITE IMPLEMENTATION CONVENTIONS

As stated above, implementation conventions document the mapping of functional data to an EDI transaction set. In draft form, the implementation convention can be used as a consensus-building document as trading partners review it against their requirements. Once the IC is approved for use, it is the key document to drive the programming of translation software, interface programs, and functional databases.

As a part of the overall federal EC/EDI effort, the Federal EC Project Management Office has chartered the Federal Standards Management Committee[7] to review and approve all ICs used by federal agencies. For grants processing, the 194 draft IC as developed by our grants EC Committee will be submitted to the FESMC in early 1996. For many other grants related transactions, we will use existing procurement transaction sets (grant solicitation, award, award acknowledgment, etc.) with ICs already written. We will review these ICs and submit requests for changes. The task boxes below show the status of this work.

Implementation Convention Status

Transaction Set/Application Name		**Status**
194	Application — Research Grant	Done — pending submission to FESMC-PWG
194	Disclosure Reporting	Draft complete in review with agencies
840	Solicitation	Done — pending submission to FESMC-PWG
838	Trading Partner Profile	In progress
850	Award	Done — pending submission to FESMC-PWG

Submission of Implementation Conventions to the FESMC

Transaction Set/Application Name		**Status**
194	Application - Research Grant	March 1996
840	Solicitation	April 1996
850	Award	April 1996

Participating federal agencies and numerous university trading partners have carefully reviewed the 194 IC for a research grant application. A separate draft IC has been developed for the SF424 cover page for block, formula, or other grant applications. However, as of November 1995, no significant work has been done to review any agency requirements for data collection on these types of grants beyond the SF424.

[7] The DoD has established a parallel FESMC to coordinate DoD component requirements.

VERSION/RELEASE OF THE ASC X12 STANDARD

The Data Interchange Standards Association (DISA) publishes an annual release of the standards each December. The release contains all Draft Standards for Trial Use (DSTUs) approved for publication through the preceding October meeting of ASC X12. Each release represents a snapshot of a standards database that is continually evolving. In December 1995, 3060 (Version 3, Release 6) was published, this version incorporated the 194.

Appendix D Internet Home Pages

The following table lists various federal agencies and other organizations with Internet home pages.

Name	Internet Address
Agencies	
Department of Transportation	http://www.dot.gov
Department of Education	http://www.ed.gov
Department of Energy	http://www.doe.gov
Department of Health and Human Services	http://www.os.dhhs.gov
Department of the Interior	http://info.er.usgs.gov/doi/doi.html
Environmental Protection Agency	http://www.epa.gov
National Aeronautics and Space Administration	http://www.gsfc.nasa.gov/NASA_homepage.html
National Institutes of Health	http://www.nih.gov/home.html
National Science Foundation	http://www.nsf.gov
Office of Naval Research	http://www.onr.mil
Other	
Data Interchange Standards Association	http://www.disa.org
Federal EDI	http://snad.ncsl.nist.gov/dartg/edi/fededi.html

Appendix E Grants Transaction Volume, 1992–1994

1992

Organization	Grant Applications Received	Awards of Competing Grants	Award of Extensions to Existing Grants	Total Grants	Dollars Awarded ($M)
DOE	3,008	2,183			398
DoEd	25,604	8,662	6,028	14,680	15,074
DoT *	61,500	57,700	62,000	119,700	23,300
EPA	8,126	4,026	7,025	11,051	3,044
NASA				2,342	350
NIH	35,524	11,311	24,544	35,855	7,479
NSF	57,334	10,697	9,603	20,300	2,385
DoD					
AFOSR		542	228		160
AMRC	490	164	248		130
ARO	1,317	415	331		86
ONR	5,883	1,104	1,752		280
Other **		444			260
DoD total	7,690	2,669	2,559		916

1993

Organization	Grant Applications Received	Awards of Competing Grants	Award of Extensions to Existing Grants	Total Grants	Dollars Awarded ($M)
DOE	3,019	2,503			433
DoEd		7,751	6,282	14,033	15,287
DOT *	29,000	25,575	39,000	64,575	23,500
EPA	5,696	4,140	7,486	11,626	4,165
NASA				2,830	350
NIH	37,597	9,993	25,486	35,479	7,646
NSF	61,214	9,051	10,426	19,477	2,462
DoD					
AFOSR		621	178		204
AMRC	633	217	270		150
ARO	1,465	529	377		121
ONR	6,362	156	1,916		330
Other **		285			216
DoD total	8,460	1,808	2,741		1,021

1994

Organization	Grant Applications Received	Awards of Competing Grants	Award of Extensions to Existing Grants	Total Grants	Dollars Awarded ($M)
DOE	1,770	549	1,837	2,386	454

Organization	Grant Applications Received	Awards of Competing Grants	Award of Extensions to Existing Grants	Total Grants	Dollars Awarded ($M)
DoEd	25,727	7,230	6,629	13,859	16,229
DOT *	29,000	26,500	39,400	65,950	26,500
EPA	5,364	4,309	7,766	12,155	3,144
NASA				2,422	350
NIH	41,671	16,118	25,571	36,689	8,069
NSF	55,643	10,230	10,721	20,951	2,792
DoD:					
AFOSR		93	140		92
AMRC	3,658	549	167		416
ARO	1,009	433	454		140
ONR	5,465	206	1,829		310
Other **		560			376
DoD total	10,132	1,841	2,590		1,334

* DOT — Mandatory funding programs.

** DoD Other — Total number of grants (not cooperative agreement and not other transactions) and total dollars.

Note: the same grants may be counted in more than one year.

Source: Directorate of Information Services (DIOR)

Appendix F Grants EC Committee Participants

FEDERAL GOVERNMENT

Air Force Office of Scientific Research

Name and Title	Organization and Mailing Address	Telephone Number	Fax Number
Chris Hughes	Air Force Office of Scientific Research 110 Duncan Avenue, Suite B115 Bolling AFB Washington, DC 20332-8080	(202) 767-7754	(202) 767-4961

Army Medical Research (Acquisition Activity)

Name and Title	Organization and Mailing Address	Telephone Number	Fax Number
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Jeanne Shinbur Chief, General Research and Development Contracts	US Army Medical Research Acquisition Activity Attn: MCMR-AAA-A Bldg. 820, Fort Detrick Frederick, MD 21702-5014	(301) 619-7427 DSN 343-7427	(301) 619-2987

Army Research Office

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Department of Education

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Department of Energy

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Department of Health and Human Services

Name and Title	Organization and Mailing Address	Telephone Number	Fax Number
Suzanne Neill Grants Policy Specialist Division Grants Policy and Oversight ** No longer with HHS*	US Department of Health and Human Services Office of the Secretary 200 Independence Ave., SW Humphrey Bldg., Room 517D Washington, DC 20201	(202) 690-5731	(202) 690-8772

Department of Transportation

Name and Title	Organization and Mailing Address	Telephone Number	Fax Number
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Brad Smith	Department of Transportation Federal Rail Administration RDV-12, Room 5411 400 7th Street, SW Washington, DC 20590	(202) 366-0343	(202) 366-0646

Environmental Protection Agency

Name and Title	Organization and Mailing Address	Telephone Number	Fax Number
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Special Assistant	401 M Street, SW Washington, DC 20460		

Federal Aviation Administration

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National Aeronautics and Space Administration

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National Institutes of Health

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National Science Foundation

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Jerry Stuck Deputy Director Division of Information Sys-tems	National Science Foundation 4201 Wilson Blvd., Rm. 455 Arlington, VA 22230	(703) 306-1160	(703) 306-0248

Office of Naval Research

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RESEARCH AND REPORT SUPPORT

Logistics Management Institute

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Appendix G Glossary

ACH	Automated Clearing House
AFOSR	Air Force Office of Scientific Research
ANSI	American National Standards Institute
ARO	Army Research Office
ASAP	Automated Standard Application for Payments
ASC	Accredited Standards Committee
BPWG	Business Practices Working Group
CD-ROM	Compact Disk -- Read Only Memory
COGR	Council on Government Relations
DFAS	Defense Finance and Accounting Service
DGSC	Defense General Supply Center
DISA	Data Interchange Standards Association
DM	Data Maintenance
DoD	Department of Defense
DOE	Department of Energy
DSTU	Draft Standard for Trial Use
E-Mail	Electronic Mail
EC	Electronic Commerce
ECAPMO	Electronic Commerce Acquisition Program Management Office
ECOS	Environmental Council of States
EDI	Electronic Data Interchange
EDIFACT	United Nations EDI for Administration, Commerce and Transportation
EFT	Electronic Funds Transfer
EIR	Extramural Invention Report
EPA	Environmental Protection Agency
ER/DOE	Energy Research/Department of Energy
ERA	Electronic Research Administration
ExPRESS	Exchange of Permanent Records Electronically for Students and Schools

FACNET	Federal Acquisition Network
FASA	Federal Acquisition Streamlining Act
FDP	Federal Demonstration Project
FECPMO	Federal Electronic Commerce Program Management Office
FESMC	Federal EDI Standards Management Committee
FIPS PUBS	Federal Information Processing Standards Publications
FRMG	Federal Research Managers Group
FWGs	Functional Working Groups
HTML	Hypertext Markup Language
HTTP	Hypertext Transfer Protocol
ICs	Implementation Conventions
IP	Internet Protocol
IRG	Initial Review Group
ISP	Internet Service Providers
JIT	Just-In-Time
MIT	Massachusetts Institute of Technology
NACHA	National Automated Clearing House Association
NCURA	National Council of University Research Administration
NEPs	Network Entry Points
NGMA	National Grants Management Association
NIH	National Institutes of Health
NIST	National Institute of Standards and Technology
NPR	National Performance Review
NRMIS	Navy Research Management Information System
NSF	National Science Foundation
OMB	Office of Management and Budget
ONR	Office of Naval Research
OPERA	Office of Policy for Extramural Research Administration
OSTP	Office of Science and Technology
PC	Personnel Computer
PWG	Procurement Working Group

RFQ	Request for Quotations
SF	Standard Form
SPEEDE	Standardization of Postsecondary Education and Electronic Data Exchange
SRA	Society of Research Administration
VAN	Value-added Network
VAS	Value-added Service
WWW	World Wide Web